

In the Claims:

Add the following claims:

CLAIMS

--41. An apparatus for increasing the flow of blood in a patient, the apparatus comprising:

- (A) a base contoured to seat near a central region of a patient's chest;
- (B) a substantially inelastic belt means configured to wrap around said patient's chest and having opposite extremities;
- (C) a powered belt means tightener coupled to said base and said belt means extremities and having on and off states and, when in said on state, moving said belt means extremities in directions to tighten said belt means around said patient's chest; and
- (D) a switch, coupled to said belt means tightener and having first and second configurations, said switch being manually movable between said first and second configurations and, when in said second configuration, placing said belt means tightener in said on state.

42. The apparatus of Claim 41 further comprising defibrillating means coupled to said base.

43. The apparatus of Claim 42 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

44. The apparatus of Claim 211 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

45. The apparatus of Claim 41 wherein said belt means tightener, when in said on state, moves said two belt means connectors substantially equally in said directions to tighten said belt means around said patient.

46. The apparatus of Claim 41 wherein said belt means tightener includes an electric motor.

47. The apparatus of Claim 41 wherein said belt means tightener includes a fluid-pressure motor.

48. The apparatus of Claim 47 wherein said belt means tightener includes a hydraulic motor.

49. The apparatus of Claim 47 wherein said belt means tightener includes a pneumatic motor.

50. A method of CPR treating patients comprising:

- (A) seating a base of a blood flow increasing apparatus on a patient's chest near a central region of said chest;
- (B) wrapping a belt means with first and second opposite extremities around said patient's chest;
- (C) fastening to said apparatus any of said extremities of said belt means not already fastened to said apparatus;
- (D) with a powered belt means tightener, coupled to said base and said belt means extremities and having on and off states, in said on state, moving said belt means extremities in a direction to tighten said belt means around said patient's chest; and
- (E) placing said belt means tightener in said on state.

51. The method of Claim 50 further including periodically repeating steps (D) to (E).

52. The method of Claim 51 further comprising defibrillating the chest of said patient undergoing CPR.

53. The method of Claim 52 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

54. The method of Claim 51 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

55. The method of Claim 50 wherein said belt means tightener, when in said on state, produces said belt means tightening resultants directed substantially tangentially to said chest and applied substantially equally to said two belt means extremities and moves said two belt means extremities substantially equally in said direction to tighten said belt means around said patient.

56. The method of Claim 55 wherein said belt means tightener includes an electric motor.

57. The method of Claim 55 wherein said belt means tightener includes a fluid-pressure motor.

58. The method of Claim 57 wherein said belt means tightener includes a hydraulic motor.

59. The method of Claim 57 wherein said belt means tightener includes a pneumatic motor.

60. An apparatus for increasing the flow of blood in a patient, the apparatus comprising:

- (A) a base contoured to seat near a central region of a patient's chest;
- (B) substantially inelastic belt means configured to wrap around said patient's chest and having opposite extremities;
- (C) a powered belt means tightener, coupled to said base and said belt means extremities, for, upon the receipt of a particular signal, (a) moving said belt means extremities in directions to tighten said belt means around said patient's chest and (b) depressing said base towards said patient's chest; and
- (D) control means, coupled to said belt means tightener, for periodically providing said particular signal to said tightener.

61. The apparatus of Claim 60 further comprising defibrillating means coupled to said base.

62. The apparatus of Claim 61 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second

electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

63. The apparatus of Claim 60 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

64. The apparatus of Claim 60 wherein said belt means tightener, when in said on state, moves said two belt means connectors substantially equally in said directions to tighten said belt means around said patient.

65. The apparatus of Claim 64 wherein said belt means tightener includes an electric motor.

66. The apparatus of Claim 64 wherein said belt means tightener includes a fluid-pressure motor.

67. The apparatus of Claim 66 wherein said belt means tightener includes a hydraulic motor.

68. The apparatus of Claim 66 wherein said belt means tightener includes a pneumatic motor.

69. A method of CPR treating patients comprising:

- (A) seating a base of a blood flow increasing apparatus on a patient's chest near a central region of said chest;
- (B) wrapping a belt means with first and second opposite extremities around said patient's chest;
- (C) fastening to said apparatus any of said extremities of said belt means not already fastened to said apparatus;
- (D) periodically providing a particular signal to a powered belt means tightener coupled to said base and said belt means extremities; and
- (E) upon the receipt of said particular signal by said belt means tightener, moving with said belt means tightener, said belt means extremities in a direction to tighten said belt means around said patient's chest and to depress said base towards said patient's chest.

70. The method of Claim 69 further including periodically repeating steps (D) and (E).

71. The method of Claim 70 further comprising defibrillating the chest of said patient undergoing CPR.

72. The method of Claim 71 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

73. The method of Claim 69 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

74. The method of Claim 69 wherein said belt means tightener, when in said on state, produces said belt means tightening resultants directed substantially tangentially to said chest and applied substantially equally to said two belt means extremities and moves said two belt means extremities substantially equally in said directions to tighten said belt means around said patient.

75. The method of Claim 74 wherein said belt means tightener includes an electric motor.

76. The method of Claim 74 wherein said belt means tightener includes a fluid-pressure motor.

77. The method of Claim 76 wherein said belt means tightener includes a hydraulic motor.

78. The method of Claim 76 wherein said belt means tightener includes a pneumatic motor.

79. An apparatus for increasing the flow of blood in a patient, the apparatus comprising:

- (A) a base contoured to seat near a central region of a patient's chest;
- (B) an actuator;
- (C) substantially inelastic belt means configured to wrap around said patient's chest; and
- (D) a force converter, mounted on said base, coupled to said actuator, and having two belt means connectors coupled to opposite extremities of said belt means, for converting a force applied to said actuator and directed toward said chest into belt means tightening resultants applied to said two belt means connectors directed substantially tangentially to said chest to cause movement of said two belt means connectors in the directions to tighten said belt means around said patient; and
- (E) a power unit, coupled to said converter, for applying a force to said converter to cause said converter to move said two belt means connectors in the directions to tighten said belt means around said patient.

80. The apparatus of Claim 79 further comprising defibrillating means coupled to said base.

81. The apparatus of Claim 80 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with

said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

82. The apparatus of Claim 79 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

83. The apparatus of Claim 79 wherein said power unit moves said two belt means connectors substantially equally in said direction to tighten said belt means around said patient.

84. The apparatus of Claim 83 wherein said power unit includes an electric motor.

85. The apparatus of Claim 83 wherein said power unit includes a fluid-pressure motor.

86. The apparatus of Claim 85 wherein said power unit includes a hydraulic motor.

87. The apparatus of Claim 85 wherein said power unit includes a pneumatic motor.

88. A method of CPR treating patients comprising:

- (A) seating a base of a blood flow increasing apparatus on a patient's chest near a central region of said chest, said apparatus including a converter, mounted on said base and coupled to said actuator and having two belt means connectors couplable to opposite extremities of a belt means means, said converter being for converting a force directed toward said chest and applied to said actuator into belt means tightening resultants applied to said two belt means connectors directed substantially tangentially to said chest to cause movement of said two belt means connectors in the directions to tighten said belt means around said patient ;
- (B) wrapping a belt means with first and second opposite extremities around said patient's chest;
- (C) fastening to said apparatus any of said extremities of said belt means not already fastened to said apparatus; and
- (D) with a power unit, coupled to said converter, applying a force to said converter to cause said belt means extremities to move in directions to tighten said belt means around said patient's chest.

89. The method of Claim 88 further including periodically repeating step (D).

90. The method of Claim 89 further comprising defibrillating the chest of said patient undergoing CPR.

91. The method of Claim 90 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

92. The method of Claim 88 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

93. The method of Claim 88 wherein said power unit produces said belt means tightening resultants directed substantially tangentially to said chest and applied substantially equally to said two belt means extremities and moves said two belt means extremities substantially equally in said direction to tighten said belt means around said patient.

94. The method of Claim 93 wherein said power unit includes an electric motor.

95. The method of Claim 93 wherein said power unit includes a fluid-pressure motor.

96. The method of Claim 95 wherein said power unit includes a hydraulic motor.

97. The method of Claim 95 wherein said power unit includes a pneumatic motor.

98. A CPR apparatus for increasing the flow of blood in a patient, said apparatus comprising:

- (A) a base contoured to seat near a central region of said patient's chest;
- (B) a manual actuator comprising first and second hand grippable handles;
- (C) substantially inelastic belt means having first and second sections for wrapping around said chest;
- (D) a force converter mounted on said base, connected to said actuator and having belt means connectors for connecting to said first and second sections of said belt means means, for converting a force manually applied to said actuator and directed inwardly toward said chest into (1) a chest compressing resultant directed through said base toward said chest and (2) belt means tightening resultants applied to said belt means connectors directed tangential to said chest, said converter comprising:
 - (1) a first arm having a first handle end to which said first handle is mounted and having an opposite, first belt means end to which said first section of said belt means is attached, said first arm being pivotally mounted to said base at a first arm fulcrum generally intermediate said first handle and said first belt means end; and
 - (2) a second arm having a second handle end to which said second handle is mounted and having an opposite, second belt means end to which

said second section of said of said belt means is attached, said second arm being pivotally mounted to said base at a second arm fulcrum generally intermediate said second handle and said second belt means end; and

- (E) a power unit, coupled to said first and second arms, for applying a lateral force to said first and second arms to move said first and second arms in the directions to tighten said belt means around said patient.

99. The apparatus of Claim 98 wherein said power unit, automatically and in regular periodic intervals, applies said lateral force to said first and second arms to move said first and second arms in said directions.

100. The apparatus of Claim 99 further comprising defibrillating means coupled to said base.

101. The apparatus of Claim 100 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

102. The apparatus of Claim 99 further comprising first and second spaced electrodes mounted to said apparatus for contacting two spaced outer chest surfaces with

said first electrode being mounted to a base outer, chest-contacting surface and said second electrode being mounted to an apparatus chest-contacting surface which is spaced from said first electrode.

103. The apparatus of Claim 99 wherein said power unit moves said two belt means connectors substantially equally in said direction to tighten said belt means around said patient.

104. The apparatus of Claim 103 wherein said power unit includes an electric motor.

105. The apparatus of Claim 103 wherein said power unit includes a fluid-pressure motor.

106. The apparatus of Claim 105 wherein said power unit includes a hydraulic motor.

107. The apparatus of Claim 105 wherein said power unit includes a pneumatic motor.

108. A method of CPR treating patients comprising:

(A) seating a base of a blood flow increasing apparatus on a patient's chest near a central region of said chest, said apparatus including a manual actuator

comprising first and second hand grippable handles, a force converter mounted on said base, connected to said actuator and having belt means connectors for connecting to first and second sections of a belt means, said converter being for converting a force manually applied to said actuator and directed inwardly toward said chest into (1) a chest compressing resultant directed through said base toward said chest and (2) belt means tightening resultants applied to said belt means connectors directed tangential to said chest, said converter comprising:

- (1) a first arm having a first handle end to which said first handle is mounted and having an opposite, first belt means end to which said first section of said belt means is attached, said first arm being pivotally mounted to said base at a first arm fulcrum generally intermediate said first handle and said first belt means end; and
 - (2) a second arm having a second handle end to which said second handle is mounted and having an opposite, second belt means end to which said second section of said belt means is attached, said second arm being pivotally mounted to said base at a second arm fulcrum generally intermediate said second handle and said second belt means end;
- (B) wrapping said belt means with said first and second opposite extremities around said patient's chest;
- (C) fastening to said apparatus any of said extremities of said belt means not already fastened to said apparatus; and

- (D) with a power unit, coupled to said first and second arms, applying a lateral force to said first and second arms to move said first and second arms in the directions to tighten said belt means around said patient

109. The method of Claim 108 further including periodically repeating step (D).

110. The method of Claim 109 further comprising defibrillating the chest of said patient undergoing CPR.

111. The method of Claim 110 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

112. The method of Claim 109 further including contacting two spaced outer chest surfaces with a first electrode and a second electrode.

113. The method of Claim 107 wherein said power unit produces said belt means tightening resultants directed substantially tangentially to said chest and applied substantially equally to said two belt means extremities and moves said two belt means extremities substantially equally in said direction to tighten said belt means around said patient.

114. The method of Claim 113 wherein said power unit includes an electric motor.

115. The method of Claim 113 wherein said power unit includes a fluid-pressure motor.

116. The method of Claim 115 wherein said power unit includes a hydraulic motor.

117. The method of Claim 115 wherein said power unit includes a pneumatic motor.—

Cancel Claims 1 to 40